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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/821,024	03/30/2001	Toshihiko Tsuji	684.3159	5544

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EXAMINER

FULLER, RODNEY EVAN

ART UNIT

PAPER NUMBER

2851

DATE MAILED: 09/09/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/821,024

Applicant(s)

TSUJI, TOSHIHIKO

Examiner

Rodney E Fuller

Art Unit

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 March 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The abstract of the disclosure is objected to because of the phrase "Disclosed is..." which can be implied. Correction is required. See MPEP § 608.01(b).

3. Claim 8 is objected to because of the following informalities:

- a. The word "tow-dimensionally" in line 4 appears to be a typographical error.
- b. On page 3, line 19, the reference "17" appears to be a typographical error and should be "107."
- c. On page 10, line 5, the word "mark" appears to be a typographical error and should be "mask."

Appropriate correction is required.

Drawings

4. Figure 10 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

6. Claims 1-6 and 8-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Shiraishi (US 6,211,944).

Regarding claims 1, 10 and 11, Shiraishi (US 6,211,944) discloses "...an emission angle conversion optical unit (Fig. 1, ref.# 7) effective to emit the light from the light source (Fig. 1, ref.# 1) at a constant divergent angle; and a diffractive optical element (Fig. 1, ref.# 12) for producing a desired light intensity distribution on a predetermined plane; wherein said diffractive optical element is disposed at or adjacent a position where light from said emission angle conserving group unit is collected."

Regarding claim 2, Shiraishi (US 6,211,944) discloses "...a multiple-beam producing element (Fig. 1, ref.# 13a), and a light projecting element (Fig. 1, ref.# 15, 19, 22, 26) for superposing light beams from said multiple-beam element one upon another

on the surface to be illuminated (Fig. 1, ref.# 27), wherein the predetermined plane corresponds to a light entrance surface of said multiple-beam producing element.”

Regarding claim 3, Shiraishi (US 6,211,944) discloses “...a zoom optical system (Fig. 1, ref.# 15, column 7, lines 44-47) for projecting the light intensity distribution, produced by said diffractive optical element, upon the light entrance surface of said multiple beam producing element at a predetermined magnification.”

Regarding claim 4, Shiraishi (US 6,211,944) discloses “...wherein there are a plurality of emission angle conserving units (Fig. 37, ref.# 111A, 111B) of different divergent angles, and wherein said emission angle conserving optical unit are interchangeably set (Fig. 37, ref.# 112 and column 45, lines 30-60) at a light path in accordance with a change in magnification of said zoom optical system.”

Regarding claim 5, Shiraishi (US 6,211,944) discloses “...wherein an emission angle conserving optical unit place at the light path is changed by another (Fig. 37, ref.# 112 and column 45, lines 30-60), whereby a numerical aperture of light incident on the light entrance surface of said multiple beam producing element is substantially registered with a preset numerical aperture of said multiple beam producing means.”

Regarding claim 6, Shiraishi (US 6,211,944) discloses “...wherein there are a plurality of diffractive optical elements (Fig. 37, ref.# 111A, 111B) for producing different light intensity distributions on the predetermined plane, wherein said diffractive optical elements are interchangeably set (Fig. 37, ref.# 112 and column 45, lines 30-60) at a light path to produce a desired light intensity distribution on the predetermined plane.”

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Regarding claim 8, Shiraishi (US 6,211,944) discloses "...wherein said emission angle conserving optical unit comprises a fly's eye lens (Fig. 37, ref.# 111A, 111B) having small lenses arrayed two-dimensionally."

Regarding claim 9, Shiraishi (US 6,211,944) discloses "...wherein said emission angle conserving optical unit comprises an aperture (Fig. 26, ref.# 76) and a lens system (Fig. 26, ref.# 76A)."

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shiraishi (US 6,211,944) in view of Orr, et al. (US 6,233,071).

Shiraishi (US 6,211,944) discloses all the subject matter set forth in the claims except "...wherein said diffractive optical element is a phase type or amplitude type computer hologram." However, the use of a hologram as a diffractive optical element is routine in the art as is evident from the teaching of Orr (US 6,233,071) (see column 12, lines 5-6). Thus, it would have been an obvious matter of design choice to modify Shiraishi (US 6,211,944) by utilizing a "phase type or amplitude type computer hologram" as the diffractive optical element, since applicant has not disclosed that a hologram solves any stated problem or is for any particular

purpose and it appears that the invention would perform equally well with either the diffraction grating plate (Fig. 1, ref.# 12) as disclosed in Shiraishi (US 6,211,944) or with a hologram.”

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Tsuji (US 6,392,742), Tsuji (US 6,285,855), Mizouchi (US 6,259,512), Shiozawa (US 5,684,567) and Michaloski, et al. (US 5,383,000) each disclose an illumination system that includes an emission angle conserving optical unit and a diffractive optical element.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney Fuller whose telephone number is (703) 306-5641. The examiner can normally be reached on Monday through Friday from 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams, can be reached on (703) 308-2847.

Rodney Fuller
Primary Examiner



August 30, 2002